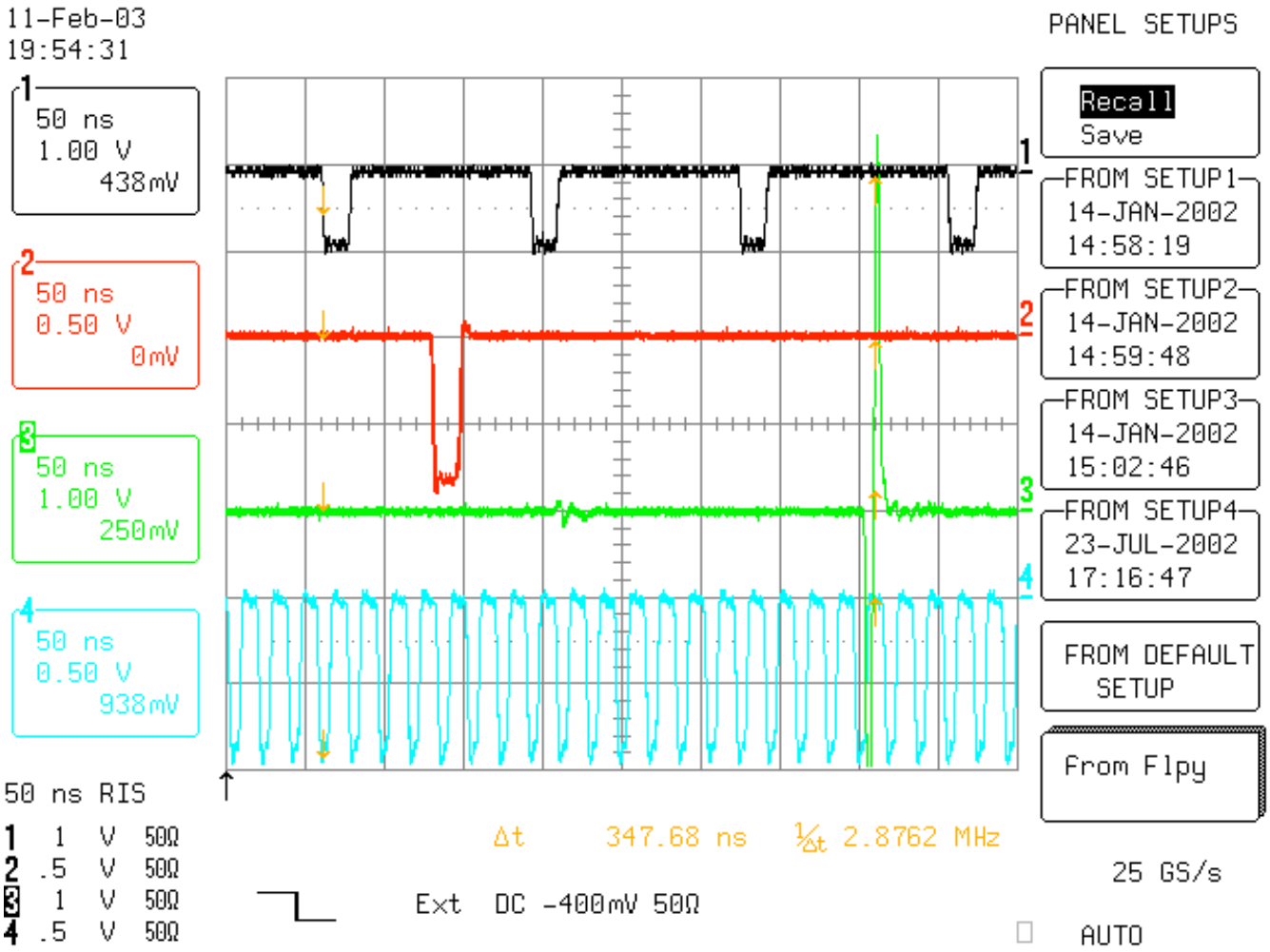
Clock System Timing Scope Picture



Above is the scope picture of the Clock System's timing. This picture is used to verify that the Clock System's timing is properly aligned to the proton bunches during a store.

Notes:

1) Channel 1 (white on the scope, black in the picture print-out) is the CDF_CLOCK signal and is taken from the output of the LVDS Fanout cable and the signal shown is the signal converted to NIM via the Clock Fanout Calibration Module (FCM). Channel 2 (red) is the Tevatron's TVBS once-a-revolution marker and is used to generate the Clock's Tev_Sync signal. This signal is shown as a NIM signal and is taken from the 821 Discriminator NIM module. Channel 3 (green) is the PE (proton downstream) pickup's bipolar signal and is used as the Clock's absolute timing reference. Channel 4 (blue) is the CTV RF signal that is used for the Tev_RF input to the PCC module. Shown as a NIM signal and is taken from the 821 Discriminator NIM module.

2) The time cursor's Δt measurement is set up to observe the time between the CDF_CLOCK output (at the B_ZERO reference point) and the PE pickup signal. This time delay determines the Clock to beam alignment and should nominally be 347.7 ns.